# NESC Study on JPSS


- **The 2014-15 NASA Engineering and Safety Center (NESC) study on the micrometeoroid and orbital debris assessment for the Joint Polar Satellite System (JPSS) provided the following findings**
  - Millimeter-sized orbital debris pose the highest penetration risk to most operational spacecraft in LEO
  - The most effective means to collect direct measurement data on millimeter-sized debris above 600 km altitude is to conduct *in situ* measurements
  - There is currently no *in situ* data on such small debris above 600 km altitude
- **Since the orbital debris population follows a power-law size distribution, there are many more millimeter-sized debris than the large tracked objects**
  - Current conjunction assessments and collision avoidance maneuvers against the tracked objects (which are typically 10 cm and larger) only address a small fraction (<1%) of the mission-ending risk from orbital debris
- **Direct measurement data on millimeter-sized orbital debris above 600 km are needed to better protect the safe operations of LEO missions, which is key to the SSA and STM**